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ABSTRACT

This paper presents a model for examining the cognitive nature of artistic development in children. The model uses Witkin's differentiation theory as a basic construct with which to integrate theories of art criticism/aesthetics (particularly, E.B. Feldman's theory), developmental psychology (Jean Piaget), and linguistics. Witkin's Differentiation Theory pertains to the ways people differ in psychological and neurophysiological behaviors covering such areas as perceptual, intellectual, personality, and social domains. Piaget's theories of intellectual development were selected as a means of providing a theoretical balance between intellectual development and differentiation; and Feldman's theory of art criticism was selected to provide a structure for determining how individuals respond to art objects. These three theories were selected as being of primary importance to the model of cognitive processes and artistic development for several reasons--they are all familiar to and well regarded by social scientists, they have all been the subject of considerable research, they all have basic similar characteristics (for example, they all derive out of the rationalistic philosophical tradition and have a cognitive base), and they all view development as a process toward greater complexity and differentiation. The method was to examine the relationship of perception and cognition to drawings of boys in grades two through six. Findings indicated a high degree of individual consistency in cognitive style across perceptual, cognitive, and graphic tasks. The conclusion is that children's development in art is more related to transaction processes affecting a child's direction and rate of growth than, as is most often assumed, to chronological age. (DB)

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TOWARD AN INTEGRATED PARADIGM FOR INQUIRY INTO THE COGNITIVE NATURE OF ARTISTIC DEVELOPMENT IN CHILDREN

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ABSTRACT

This paper presents the process and progress of integrating constructs from theories in art criticism/aesthetics, developmental psychology, and linguistics with which to form a basis for long-term systematic inquiry into the cognitive nature of artistic development. Recent research on learning and memory involving verbal and/or imaginal elaborations implies the existence of cognitive structures and processes specific to the visual arts. However, no one existing theory appears adequate for the study of the nature of artistic development. Witkin's differentiation theory is used as the basic construct with which to integrate theories from diverse, but related, areas.

INTRODUCTION

The cognitive movement has emerged as a strong focus in educational research. Although the areas of interest differ widely within this movement, the general concern is for the study of learning and instruction as an internal, cognitively mediated process rather than as a direct product of the environment, people and factors external to the learner. Thus, the cognitive movement brings a unity of interest to people who study individual differences and learning and instruction, and a unifying syntheses to many recent research findings (Wittrock, 1979).

The cognitive movement is also emerging as a strong focus in art education research (Engel, 1977; Madeja, 1978; Perkins, 1977). The underlying assumption is that the arts are a form of knowledge, a symbolic and expressive system, which can be understood as cognitive processes. Support for this assumption comes from the recent work in cognitive psychology which emphasizes that nondiscursive matters such as perception, motor control, personality, and emotion may be included in the traditional definition of cognition or knowing. These findings are relevant to the view of art as cognition. This relatively new view suggests the need to reexamine the theory base for instruction in art.

The lack of congruity among theories on artistic growth and the resultant diversity of guidelines for instruction is a major reason for the recent focus on cognitive research in the arts (Madeja, 1978). The traditional affective approach to teaching and learning in which the arts are viewed as instinctive, ineffable processes is considered an unproductive stance (Engel, 1978). As a consequence, there currently exists a critical need for an adequate theory base for instruction in the arts. The cognitive approach seems to be a viable and logical mode to use as a framework since it emphasizes the active and constructive role of the learner. This approach is necessary in addressing the question of what occurs within cognitive processes when we create, express, invent, and learn. The complexity of these issues suggests a multidisciplinary, cognitive approach to inquiry -- an integration of theories with which concerns in learning and instruction in the arts can be examined.

THEORY SELECTION

It was hypothesized that a cognitive intellectual framework for a theory base for instruction in art might emerge from an integration of theories in developmental and cognitive psychologies, art criticism, and linguistics. Selection of these basic categories was based on factors deemed important for a more holistic view of the processes of

creating, inventing, expressing and responding in the visual arts. A theory of intellectual development seemed necessary for determining qualitative and successive changes in cognitive abilities related to mental growth. A theory on individual differences in functioning and in encoding and processing information (cognitive style) across perceptual, conceptual and personality domains appeared to be necessary as a central component of the proposed paradigm, as well as complementary to a theory on intellectual development. A theory of art criticism was considered necessary to determine the nature of aesthetic responding as a systematic process in relation to intellectual development and individual cognitive style. Lastly, a theory of linguistics was deemed necessary to determine the structure of verbal discourse within the context of art processes and other theory categories.

The specific theoretical models selected for integration are: Witkin's Differentiation Theory (Witkin, Goodenough, Oltman, 1979) (cognitive psychology), Piaget's Theory of Intellectual Development (1966) (developmental psychology), and Feldman's Theory of Art Criticism (1972). Yet to be selected for inclusion in the integrative process is a theory in the area of linguistics.

Basic reasons for selecting the theories of Witkin, Piaget, and Feldman are as follows:

1. Witkin's Differentiation Theory was selected as the basic framework within which to integrate other relevant theories. Since

this theory is one of the most researched theories in social science, and since it pertains to the ways people differ in psychological and neurophysiological behaviors covering such areas as perceptual, intellectual, personality and social domains, it was considered a viable core construct for examining individual differences in artistic behavior.

2. Piaget's Intellectual Development Theory was selected for possible integration to provide a theoretical balance between organismic intellectual development and differentiation -- between developmental change in cognitive abilities and consistency of individual cognitive style. Like the Witkin theory, Piaget's is well-known and researched. This integration might provide a basis for greater understanding of the cognitive aspects in artistic creation and response.

3. Feldman's Theory of Art Criticism was selected for possible integration to provide a structure for determining the bases on which individuals respond to art objects. This theory contains the general process (stages) and aesthetic foundations of art criticism. Since the stages progress from simple to complex operations, they can be viewed as a developmental process. Since the cognitive abilities needed also follow this progression, Feldman's theory can be related, in some ways, to Piaget's theory. Similarly, the form of one's response to art is uniquely individual and could be related to cognitive style, which would encompass Witkin's theory.

METHODOLOGY

The process of developing an integrated paradigm for systematic inquiry into the cognitive nature of artistic behavior included several initial considerations in determining whether a theory should be included and, once the selections were verified, a series of sequential operations for determining the nature of the integration was set in motion and is currently in progress.

Initial considerations for the inclusion of theories in the integrative process were based on: similarity of basic characteristics; complementary or compatible developmental processes; theoretical "fit" in a holistic view of the learner; and status among similar type theories and within the community of researchers.

Two of these initial considerations -- theoretical "fit" and status among other theories -- were discussed briefly in the preceding section. The following discussion will focus on the similarity of basic characteristics and on complementary or compatible developmental processes among the three theories.

Similarity of Basic Characteristics

Each theory (Witkin, Piaget, Feldman) comes out of the rationalistic philosophical tradition (reason is the prime source of knowledge in this tradition, as contrasted with the empiricist tradition in which experience is considered the only source of knowledge). Each of the theories has a cognitive base. Each seems to view differentiation as a process of

development toward greater complexity. More significantly, each theory seems to imply that the basis for development is the interplay between the process of differentiation and synthesis.

Differentiation in Witkin's theory is a process of development toward greater psychological complexity that becomes manifest in the perceptual, cognitive and personality styles of the individual. Integration occurs during this process of differentiation. Behaviors reflecting the extent of differentiation are likely to be interrelated, resulting in self-consistency in individual functioning across domains.

In Piaget's theory on intellectual development, the interplay between the process of differentiation and synthesis is basic to his equilibration concept -- the overarching principle in his theory and the essential basis for mental growth. Equilibration is an adjustive process needed to fit external reality into an existing structure (assimilation), and to modify that structure while this is taking place (accommodation) (Hilgard & Bower, 1975). The result of this process is a state of equilibrium. Mental growth, for Piaget, is the resolution of tension between assimilation and accommodation. The achievement of a relatively equilibrated system of actions is the expected conclusion of each of the several units of development (stages) (Phillips, 1969, p. 10).

In Feldman's theory of art criticism, differentiation can be described as a cognitive process in which the individual moves systematically from simple identification of salient visual cues within an art object (Description), to increasingly greater discrimination (Analysis), to a search for meaning (Interpretation), and to the act of

evaluation (Judgment). Although the progress is sequential, from one operation to another, there is, in actuality, an interplay between the process of differentiation and synthesis. Earlier stages are the basis for developing a synthesis of relationships that interplay with each of the subsequent stages. According to Feldman (1972), ". . . the stages go from the specific to the general. That is, we focus on particular visual facts before drawing conclusions about their meaning and their corporate value." (Feldman, p. 635)

Complementary or Compatible Developmental Processes

Although each of the theories selected views development as a process toward greater complexity and differentiation, the focus of this process differs among the theories.

Witkin's Theory: Differentiation is viewed as a structural property of an organismic system. "The tendency to function in a more or less differentiated fashion is likely to be evident to some degree, throughout an individual's psychological and neurophysiological activities." (Witkin, Goodenough & Oltman, 1979, p. 1137) This hypothesis accounts for a network of functions and behaviors responsible for a particular kind of individual consistency.

Witkin's theory has, as a central concern, self-consistency of an individual's functioning across a number of domains, identified as cognitive style. Cognitive style involves characteristic approaches to a wide range of situations inclusive of perceptual, intellectual, and

personality abilities. Also, cognitive style is concerned with the form rather than the content of cognitive activity and refers, most specifically, to individual differences in functioning (Witkin, Moore, Goodenough & Cox, 1977).

Piaget's Theory: Whereas Witkin's theory views the extent of differentiation in psychological and neurophysiological activities as self-consistency within individual functioning, Piaget's theory views differentiation (equilibration) as a process of cognitive development manifested in ever-changing evolutionary stages, sequentially determined. A basic assumption is that thought, throughout its formation, is in disequilibrium; every new acquisition modifies previous ideas or risks involving a contradiction. The organism is in a constant state of movement and change (Hilgard & Bower, 1975).

Piaget's theory is concerned primarily with structure rather than content -- with how the mind works rather than what it does. The basic underlying idea in Piaget's theory is that functions remain invariant but that structures change systematically as the child develops (Phillips, 1969). Function refers to biologically inherited modes of interacting with the environment; structure refers to systematic properties of an event, encompassing all aspects of an act, both internal and external (Phillips, 1969).

To Piaget, intellectual growth is a continual process of organization and reorganization of structure. Phillips (1969) observes that "although

this process is continuous, its results are discontinuous; they are qualitatively different from time to time. Because of that, Piaget has chosen to break the total course of development into units called periods, subperiods, and stages. Each of these cross sections of development is described in terms of the best the child can do at the time. Many previously learned behaviors will occur even though [the child] is capable of new and better ones" (p. 10).

Feldman's Theory of art criticism has, as a central focus, sequential operations which seem to parallel, in essence, Piaget's concept of intellectual growth as a continual process of organization and reorganization of structure. Each operation in the art criticism process is qualitatively different from the previous operation, yet the total understanding and valuing of the art object comes from the interplay and funded knowledge derived from each stage. Cognitive abilities most specific to each stage of art criticism also seem to parallel stage-specific cognitive abilities in Piaget's theory since they proceed from simple to complex. In addition, the necessary cognitive abilities implied in each stage of art criticism would favor, differentially, specific cognitive styles. Hence, both Witkin's and Piaget's theories appear to be compatible with Feldman's theory.

Briefly stated, Piaget's theory focuses on cognitive development as manifested in evolutionary, sequential, hierarchical stages; Witkin's theory focuses on the extent of differentiation in cognitive

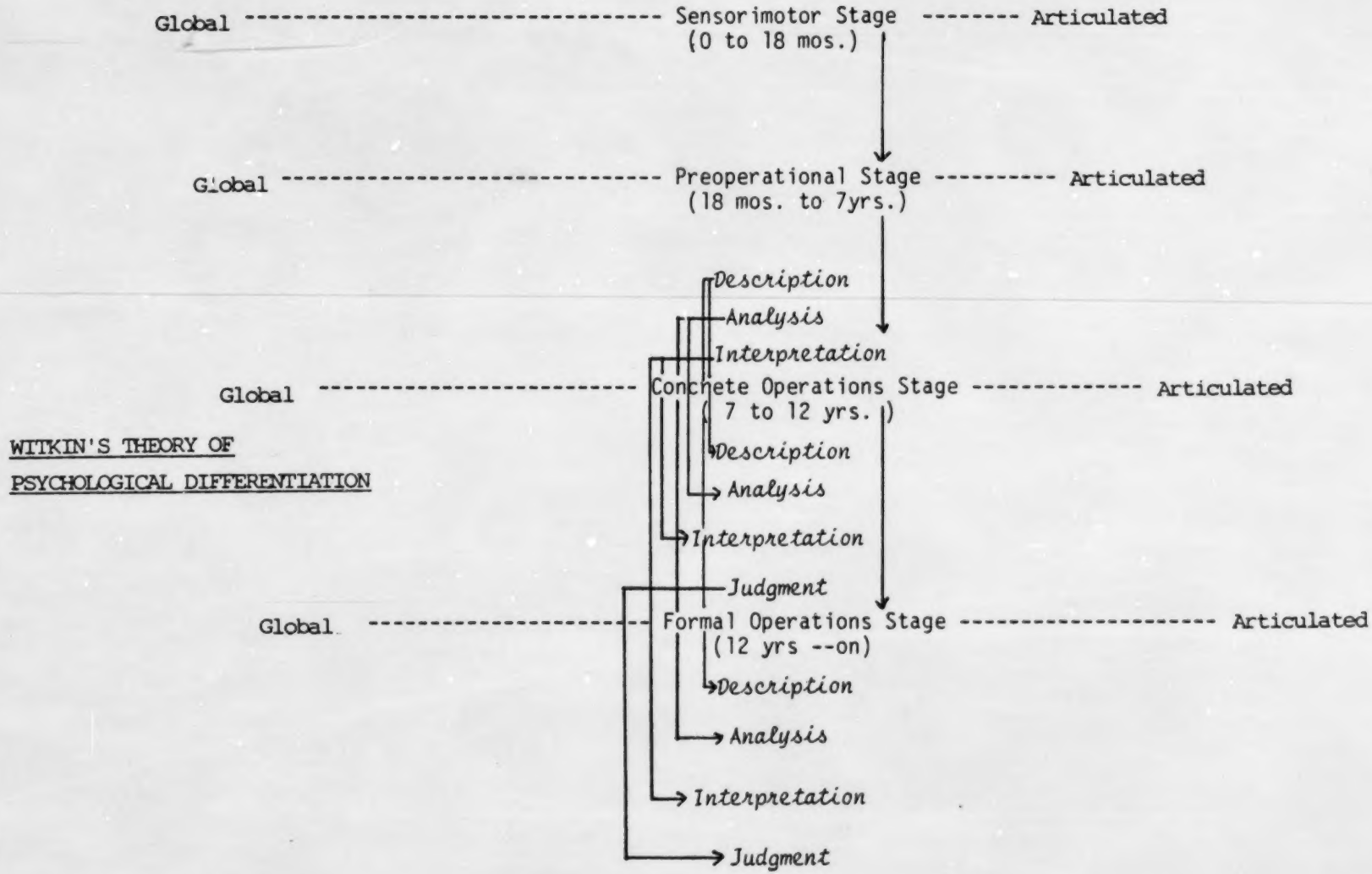
processing as manifested in individual self-consistency across psychological and neurophysiological domains. Feldman's theory implies the existence of basic characteristics specific to both theories as manifested in the process of art criticism.

Graphically, Piaget's theory can be projected as a vertical structure; Witkin's as a horizontal structure intersecting each stage of intellectual development. Feldman's theory is superimposed over both theories suggesting an intersecting of vertical and horizontal structures (Figure 1).

The process involved in the initial considerations for the selection of theories to be included in the integrated paradigm overlapped, to some extent, the sequence of operations for determining the nature of the integration. Certainly, the first operation, which involved the identification and explication of major constructs within each theory, intersected with initial considerations. Examination and analysis of the possible relationships between the constructs -- the second operation -- has been partially completed and was also used as a basis for considering inclusion in the integrative process. Also in progress is the next operation of integrating the constructs and placement within a network or matrix. A final step will involve the development of operational definitions for each integrated construct as a preliminary step to a series of studies on the cognitive nature of artistic behavior.

Figure I

PIAGET'S THEORY OF INTELLECTUAL DEVELOPMENT



FELDMAN'S THEORY OF ART CRITICISM

Jessie Lovano-Kerr
April, 1981

IMPLICATIONS FOR FURTHER STUDY

Cognitive models have been constructed to examine individual differences among learners in cognitive processes and structures. Among these is the construct of cognitive styles. Cognitive styles are conceived as stable ways people differ in perception, encoding and storage of information. Witkin (1978-79) describes these information processing modes as a continuum: from the global or field-development cognitive style to the differentiated/articulated or field-independent cognitive style. Individual differences in social behaviors associated with each information processing mode has meaningful implications for teaching and learning. Although a wealth of studies have been conducted using the cognitive style construct, very little is known of the effect of match or mismatch between global and articulated cognitive styles and tasks common in schools. For example, standardized tests of intelligence, including some non-verbal ones, often measure students' analytic/articulated cognitive styles (Wittrock, 1979).

There is some indication that curricula with organizations that matched cognitive styles of the learner greatly enhanced learning. Results from a recent study (Wittrock, 1978) indicated that instruction designed to interact with young children's developmental stages and information processing strategies reduced the trials needed for transfer from about 10 to 1. Understanding the learners' cognitive and affective processes, such as their aptitudes, appears to be important in approaching the problem of how people learn from instruction.

Recent research on learning and memory involving verbal and/or imaginal elaborations imply the existence of cognitive structures and processes specific to the visual arts in need of further study. Imagery has reappeared as an important topic in the study of learning and instruction. Some research findings on imagery that have implications for the arts indicate that: (1) pictures and instructions used to generate images and concrete words facilitate memory (Paivio, 1971); (2) pictures of objects are remembered better than names of objects by children and adults (Levin, 1976); and (3) illustrations often facilitate comprehension of prose by children, although the results depend on the sex, age and socioeconomic status of the learners (Rohwer & Harris, 1975). Also, Whittrock (1979) found that "paintings, pictures, sculpture, architecture and imagery in poetry are holistic imaginal ways to relate new information to abstractions and memories of experience" (p. 10).

These research findings tend to emphasize the instrumental value of the visual arts for learning and instruction in mainly non-art areas. Although the cognitive processes may be shared or related, very little is known about those processes and structures that are specific to or emerge from artistic knowing and experiencing. Several questions may clarify this point: Do the arts enhance the underlying knowledge base of the individual, hence making it possible to detect and resolve relationships that previously went unnoticed? Do the arts provide a noticeably different way of viewing and knowing the world? (Madeja, 1978)

Interest in cognitive approaches to the study of relevant issues in learning and instruction in the arts has surfaced recently among those concerned with the arts and inquiry (Engel, 1977, 1978; Madeja, 1978; Perkins, 1977). Four major issues for research have been identified: (1) the role of expression in the arts; (2) the relationship of developmental theory in psychology to the arts; (3) the relationship of perception to cognition and the arts; and (4) the possibility of transfer between the arts and general cognition (Madeja, 1978).

These issues are not entirely new to those who have conducted inquiry in the arts using the cognitive approach. However, since the number of studies in cognition and the arts are few, the new emphasis is necessary to test the assumption that the arts are cognitive and basically about knowledge.

The focus of an earlier study (Lovano, 1971) in part reflected this assumption. Currently, the author's focus is on extending past research on (1) the relationship of perception to cognition and the arts; and (2) the relationship of developmental theory in psychology to the arts. The first issue was central to the study, and the second issue emerged as a result of the study. Specifically, the study sought to determine the relationship of perception and cognition to the graphic expression (drawings) of boys in grades 2 through 6, using Witkin's and Kagan's cognitive style dimensions as a conceptual framework. Results indicated individual consistency in cognitive style across perceptual, cognitive

and graphic (drawing) tasks. Drawings (of a present visual stimuli) were judged on the basis of their degree of sophistication and analytical or global response in size, value, detail and space relationships and separation of figure and ground. Results showed a wider range of individual differences within each grade level than between grade levels. The higher the grade, the greater the diversity. The only significant difference emerged between the second and sixth grades. These results are contrary to theories on children's development in art which are based on the assumption that development in drawing is more related to chronological age than to the transaction processes affecting a child's direction and rate of growth. Also, drawing theories were based on collections of children's drawings of things remembered and not on their abilities to draw when responding to something they see. These discrepancies suggest questions for further inquiry related to this study, such as:

1. How does artistic development occur? How do the arts relate to the developmental theories that now exist? Are there identifiable stages of growth from which to create a theory of aesthetic or artistic development?
2. What is the relationship of cognition, in particular cognitive styles, to performance in the visual arts in responding and in producing art? What is the relationship of cognitive style to children's intellectual development and artistic responses?

3. What is the effect of continuous and planned art instruction on the artistic development of children? (Past studies have focused on ages and stages in which the direct effect of instruction is not known.)
4. What cognitive functions are more highly developed as a result of art instruction? How are these functions related to other functions and how do they affect learning?
5. What effect does art instruction that reflects or favors a specific mode of information processing have on persons using a different mode?
6. How does art instruction intentionally based on one, or a balance of two, modes of cognitive style effect artistic performance? Can the preferred mode of information processing be changed by instruction? If so, at what point does instruction effect the cognitive mode?

The question of the effect of individual cognitive style on art preference and on art criticism has not been examined. Yet, the forms of information processing and the related social behaviors and other personality variables in Witkin's theory, suggest that art preference may be a function of the relationship between art style (Expressionistic, Formalistic, Realistic) and cognitive style more than other variables examined in past research. Similarly, the various approaches to art criticism and aesthetic perception (Feldman, 1973;

Mittler, 1976; Broudy, 1967; Smith, 1966) may be favoring one mode of processing and encoding information over another. The emphasis on analysis of parts to the whole may exclude persons with a global style. Conversely, approaches focusing on mood and feeling may exclude persons with an articulated/analytical style. A better understanding of these influences in responding to art could be basic to instructional development and to teaching and learning in art. Questions for inquiry into these concerns might take the following form:

1. What relationships exist between cognitive style, art style, and intellectual development in responding to art objects?
2. Is there a pattern of behaviors that emerges as a function of cognitive style, art style, and intellectual development in the process of art criticism -- in particular, with each stage of art criticism?
3. What is the effect of instruction in art criticism on art preference and cognitive style? What is the effect on art production?

An integrated paradigm of cognitively based theories of intellectual development, cognitive development, art criticism, and linguistics might provide a theoretical framework for a more holistic approach to inquiry into the basis of artistic behavior. Such a paradigm could be essential for examining basic, but complex, issues yet to be resolved in art education.

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